

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

DIVISION: INSECTS AFFECTING MAN AND ANIMALS

PROJECT: SCREW WORM IN GEORGIA

PERIOD: QUARTER ENDING

DEC. 31, 1934

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STATION: SAVANNAH, GA.

During 1934 the livestock industry of the Southeastern states experienced the most destructive outbreak of screw worms ever recorded for this pest. The stockmen were not prepared to cope with the invader and there was a most rapid spread in several states. From questionnaires received from county agents it is estimated that in Georgia alone there were one-half million cases of screw worm infestations, with a mortality of 16.6 percent. Where farmers had livestock under fenced conditions they were not familiar with the pest and use of methods of control of screw worms and they experienced preventable losses. In open range areas the losses were not preventable because it was not possible to herd the animals and treat them properly. In the latter areas the pest gained a stronghold during 1933 and multiplied to numbers sufficiently to cause a record breaking number of infestations for the year 1934. The momentum gained by the pest was so great that educational campaigns served principally to reduce losses during the emergency.

HISTORY:

About seventy years ago and approximately thirty or forty years ago, screw worms were reported in Pearl River and surrounding counties in Mississippi. At different times persons residing in this section observed a few cases in livestock, but they did not reach the proportions of an outbreak. In 1932 infestations were common in this section but most of the cases were mild in nature. In the autumn of 1933 more infestations were present in this section and they caused some losses of livestock.

In Georgia the first case of screw worms came to the attention of Dr. H. B. Ruffensperger near Boston during July of 1933. In September of that year they were present in the southern counties of Georgia and in two separated areas on northern Florida. They were present near the boundary line of these states and in both states at about the same time, the cases occurring before any cattle were imported from drouth stricken areas of the West.

SEASONAL INCIDENCE AND SPREAD:

During the spring of 1934 some stockmen reported screw worms in animals, but collections of larvae from such cases proved to be Phormia regina, the winter blow fly. Larvae were collected and reared in the vicinity of Thomasville by R.A. Roberts, and in his opinion there were no cases of true screw worms present at the time.

The first cases of true screw worms for the year of 1934 were found at Hinesville, Georgia on May 15th. The worms were reared and identified by ourselves and Cushing as Gochliomyia americana. From this point which represented an outpost of the advance of 1933 there was a rapid spread. In some sections it appeared rather gradual but in some places we received reports of small foci of infestations well in advance of the zone of advance of the pest. During 1934 the spread of the pest included 55 counties in Florida, about 120 counties in Georgia, 31 counties in Alabama, 26 counties in Mississippi and 6 counties in South Carolina.

MORTALITY AND VALUES:

From questionnaires received from county agents in Georgia estimates were averaged for losses due to deaths of animals and the monetary values. The estimates did not include FERA cattle.

Infestations reported from 48 counties 1933	63,008
Acreage " " " " " "	1,313
Number animals dying " "	11,187
Percent mortality during 1933	\$64,830.
Average mortality value of animals dying 1933.....	\$5.79

Infestations reported from 89 counties 1934.....	318,530
Average per county reported from 89 counties 1934.....	3,579
Number of animals dying 89 counties 1934.....	53,137
Percent mortality during 1934.....	16.6
Monetary value animals dying 1934, 89 counties.....	\$286,925
Average monetary value of animals dying 1934	\$5.40

Average number of cases per county reporting.....	3,579
Estimated cases for 120 infested counties.....	429,480
Estimated deaths " " " " 16.6%.....	71,293
Estimated value " " " " 45.40.....	\$384,982.

The estimates given for 1933 probably represent the losses during the whole year as a result of death. Those given for 1934 were obtained after the season for screw worm flies but they do not include animals dying from emaciation and weakness produced by screw worm infestations. Attention is invited to the fact that the cost of treating infested animals which were "cured" are not included. Many of the animals recovering from screw worms live for a long time but are not entirely normal animals. The cost of peddler remedies would probably amount to one-quarter of a million dollars in Georgia.

EDUCATIONAL WORK:

In the autumn of 1933, Dr. H. B. Raffensperger of the Bureau of Animal Industry, Dr. Wm. E. White of the State Department of Agriculture, and W. E. Dove of the Bureau of Entomology and Plant Quarantine held meetings in more than 30 counties of the state. The meetings were on invitation of county agents and others.

During the summer of 1934 about 40 meetings and demonstrations were held by W. E. Dove and R. A. Roberts of the Bureau of Entomology and Plant Quarantine. The latter were in cooperation with M. S. Yoemans, state entomologist, Dr. White and Dr. Raffensperger.

During August W. E. Dove and R. A. Roberts instructed 28 FERA supervisors for screw worm control work. These men were under the direction of Mr. R. L. Vansant, Rehabilitation Division, Georgia Emergency Relief Administration. The FERA program was designed especially for government owned cattle and for stockmen living near these herds.

By arrangement with the FERA at Washington and Atlanta, Georgia, \$7500 was made available for educational work in Georgia. The program was approved on September 19, 1934 and the work was under way in about ten days. Before beginning this work a questionnaire was sent out to county agents in the infested area to determine the incidence and losses due to screw worms. The status was of September 15th, as follows:

Average number of cases in 24 counties 1934.....	1178
" " " on September 15th, 1934.....	474
" " " cured or dead before 9/15.....	704
" " deaths before September 15th	137

Percent mortality of infested animals before.....	19.4
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The high mortality showed that either the infested animals were not treated or that they were treated improperly. It was learned that peddler remedies consisting of coal tar or phenols were responsible for many deaths. The greatest need was a distinct understanding by the farmer of what to use on wounds and how, as well as what not to use and why.

In beginning the program ten key meetings were held in the 80 counties infested with screw worms. Men suitable for conducting meetings and demonstrations were selected for such work and were kept in attendance during these meetings. When they were assigned counties for work it was distinctly understood that they were under the direct supervision of the county agent and that arrangements for meetings were to be made with him. Roberts and Dove made efforts to check on these men by attending meetings held by them and by making constructive criticisms of their work. The meetings had as a definite objective and reduction of deaths through proper treatment of animals, because a real emergency existed. As much as possible the good principles of animals management were introduced.

On November 8th, 50 questionnaires were received from county agents of the infested areas. The following are the figures furnished by them and they do not include FERA animals:

Average number of cases 50 counties 1934.....	2852
" " " deaths " " "	351
Percent mortality of infested animals.....	12.4

By comparing these figures with those obtained on September 15th it will be seen that the death rate for the entire year preceding November 8th was 12.4 as compared to 19.4 on Sept. 15th. The mortality was reduced during the period when cases of screw worms increased from an average of 1178 per county to 2852 per county.

Meetings and demonstrations held in the infested territory totaled 842 which represented a total attendance of 26,583 farmers and stockmen. Materials for treating infested animals were not furnished to those men because the amount allotted was not enough to permit it. Each of the supervisors and county agents were furnished supplies for all demonstration purposes. Some materials not distributed are being used for distribution at important points of the open range areas.

THE OPEN RANGE AND PREDISPOSING CAUSES:

In different localities and during different seasons of the year it is not difficult to trace the contributing causes of screw worms to definite types of injuries and to definite practices some of which could be modified by improved methods of management of livestock. For example in 1934, (1) the early cases occurred in the navels of pigs and calves; (2) other cases followed late surgical operations; (3) the Gulf coast tick was plentiful enough to furnish places for the next lot of breeding places and, (4) by the time the third group of injuries had contributed to the production of screw worm flies, the latter were sufficiently numerous to locate most of the injuries and wounds of animals on small farms. Cases were then found in the penis sheath of horses and mules and in other places where screw worms do

not ordinarily attack. Some of these locations were so unusual that persons were led to believe that the flies did not require injuries in order to deposit eggs. At this time there was much hysteria and persons having only a few animals under controlled conditions viewed the problem with alarm.

Of the four general classifications of injuries which contribute to the maintenance of screw worms, it is easily observed that three of these result from open range conditions. The open ranges develop a large population of flies before the livestock on small farms suffer losses. The problem is primarily one of ~~the~~ reducing breeding of the flies on the open ranges.

CONTINUATION OF FERA PROJECT:

The educational program on screw worm control has been extended so as to permit promotional work in construction of stock pens and chutes on the open range. An allotment of \$5000 for a period of sixteen weeks enables us to use four or five men for this work. Projects are to be started in the different counties having open ranges, and labor with some materials are to be furnished by the county FERA organization. In this work we are favored with cooperation of the state veterinarian and the Bureau of Animal Industry who are now testing cattle for tuberculosis in this portion of the state. They need pens and they are assisting us in getting some good ones. They have need for the pens for a period of 72 hours and ordinarily most any sort of a pen would serve their purposes. It is not an easy matter to get stock pens constructed when screw worms are not actually causing losses, and we do not expect to get pens constructed in all places where they are needed, but we intend to get as many as we can with the present allotment. Now that screw worms are established in the southeastern states, we can reasonably expect them to be with us during next year. Attention is invited to the fact that they became well established during 1933 and the mortality is estimated at 18.6 percent of the infestations. The writer is of the opinion that if screw worm flies are held in check in the open range counties that other counties are not apt to suffer losses of importance.

WHAT IS NEEDED:

The present program to promote construction of stock pens is not apt to be sufficient to take care of the open range problem during next year. It seems desirable to use one man in each of the open range counties to serve as a special assistant to the county agent for the purpose of doing screw worm control work. Before the flies are on the wing he

should be on the job to get pens and chutes in order. He should push the good principles of animal management so that the effort put into livestock will result in better animals and be profitable to the stockman. He should see that all stockmen of the county are properly equipped with materials recognized for treatment. If these materials are on hand and used to prevent infestations of wounds, the peddler and his deadly phenols and crescotes are not so apt to unload their wares. It is suggested that benzol and pine tar oil be furnished through the screw worm advisor, but that the actual treatment of infested animals be left to the stockman or to his veterinarian if he chooses to employ one at his own expense. The county supervisor should be employed by the Bureau of Entomology and Plant Quarantine and subject to its orders to work in other counties if it is deemed necessary in meeting the situation. I would stongly advise against turning this work over entirely or in part to the extension service of the state. The active cooperation of the county agent is necessary for the best results, but it should be understood that the Bureau has the authority and responsibility of the screw worm control program. In Georgia there are approximately 60 counties having open ranges. The following is suggested as a county set-up:

Screw Worm Advisor, April 1 to Nov. 1 7 months	@ \$80. per mo.	\$560.
Mileage	" " "	\$40.
Benzol, pine tar oil nails and gate lumber for chutes		230
		300
		<u>\$1140</u>

Supervisory expense for 10 district men for 60 counties	\$10,500
" mileage and expense, also bureau personnel	\$14,000

The items do not include labor for building of chutes, as these can be arranged to some extent as work relief and some stockmen can be induced to build for themselves. The program has no provision for carcass burning and no provision for use of fly traps. These are considered as matters for the individual if he chooses to use them.

EXPECTED BACK FIRE.

The counties adjoining the open ranges are going to seriously object when they are left out of the program. To meet this situation it is suggested that the assignments for open range counties be made flexible so that men could be moved to other counties if the situation warrants it. There is more hysteria in counties recently infected by screw worms and the Bureau should be in position to carry on an educational program with perhaps one man to ten counties of this kind.

Respectfully submitted,

W.E. Dove, Entomologist.

